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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of

William Christopher Hardy

Application No.: 09/778,186

Filed: February 7, 2001

For: METHOD AND SYSTEM FOR
EVALUATING THE QUALITY OF
PACKET-SWITCHED VOICE SIGNALS

) Mail Stop: APPEAL BRIEF - PATENTS
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) Group Art Unit: 2661
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) Examiner: Ian N. Moore
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TRANSMITTAL FOR APPEAL BRIEF

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Transmitted herewith is an Appeal Brief in support of the Notice of Appeal filed July 13,
2005.

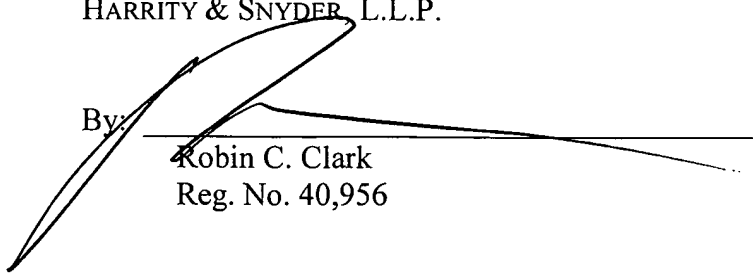
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Respectfully submitted,

HARRITY & SNYDER L.L.P.

By:


Robin C. Clark
Reg. No. 40,956

11240 Waples Mill Road
Suite 300
Fairfax, Virginia 22030
(571) 432-0800

Customer No.: 25537

Date: September 13, 2005



PATENT
Docket No. RIC98014P1

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APPEAL BRIEF

This Appeal Brief is submitted in response to the final Office Action, dated April 19, 2005, and in support of the Notice of Appeal, filed July 13, 2005.

I. **REAL PARTY IN INTEREST**

The real party in interest in this appeal is MCI, Inc.

II. **RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS**

Appellant is unaware of any related appeals, interferences or judicial proceedings.

III. STATUS OF CLAIMS

Claims 1-32 are pending in this application. Claim 32 has been allowed. Claims 1-31 were finally rejected in the Office Action, dated April 19, 2005, and are the subject of the present appeal. These claims are reproduced in the Claim Appendix of this Appeal Brief.

IV. STATUS OF AMENDMENTS

No amendments were filed subsequent to the final Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In the paragraphs that follow, each of the independent claims that is involved in this appeal and each dependent claim that is argued separately that is in means plus function or step plus function format will be recited followed in parenthesis by examples of where support can be found in the specification and drawings.

Claim 1 recites a method for determining acceptability of quality of a second communications service, in comparison to a first communications service, which is deemed to exhibit acceptable quality (e.g., Fig. 6; pg. 26, lines 12-15), comprising obtaining a first quality index pertaining to the first communications service (e.g., Fig. 6, step 604; pg. 26, lines 15-17 and 28-30, pg. 27, lines 1-9); obtaining a second quality index pertaining to the second communications service (e.g., Fig. 6, step 602; pg. 26, lines 22-23); and determining that the second communication service is of unacceptable quality if the second quality index differs from the first quality index service by more than a selected amount (e.g., Fig. 6, step 620; pg. 30, lines 16-21).

Claim 6 recites a method for determining the quality performance required of a second communications service in comparison to a first communications service (e.g., Fig. 6, step 604; pg. 26, lines 12-15), comprising obtaining a first quality index representing the quality of the first communication service (e.g., Fig. 6, step 602; pg. 26, lines 15-17 and 28-30, pg. 27, lines 1-9); determining the effect of at least one performance characteristic of the second communication service upon a second quality index pertaining to the second communication service (e.g., Fig. 6, step 612; pg. 28, lines 17-30); and determining a value for the performance characteristic required to maintain the second quality index acceptably near the value of the first quality index (e.g., Fig. 6, step 620; pg. 30, lines 16-21).

Claim 11 recites a method for determining the quality performance required of a second communications service in comparison to a first communications service (e.g., Fig. 6, step 604; pg. 26, lines 12-15), comprising obtaining a first quality index representing the quality of the first communication service (e.g., Fig. 6, step 602; pg. 26, lines 15-17 and 28-30, pg. 27, lines 1-9); determining the effect of a first performance characteristic of the second communication service upon a second quality index pertaining to the second communication service (e.g., Fig. 6, step 608; pg. 28, lines 4-10); determining the effect of a second performance characteristic of the second communication service upon the second quality index pertaining to the second communication service (e.g., Fig. 6, step 612; pg. 28, lines 17-30); assuming a selected value for the first performance characteristic (pg. 29, lines 17-25); and in the context of the selected value for the first performance characteristic, determining a value for the second performance characteristic required to maintain the second quality index acceptably near the value of the first quality index (e.g., Fig. 6, step 620; pg. 30, lines 16-21).

Claim 19 recites a method for determining the quality performance required of a second communications service in comparison to a first communications service (e.g., Fig. 6, step 604; pg. 26, lines 12-15), comprising obtaining a first quality index representing the quality of the first communication service (e.g., Fig. 6, step 604; pg. 26, lines 12-15); determining a second quality index representing the quality of the second communication service subject to at least one degraded performance characteristic (e.g., Fig. 6, step 602; pg. 26, lines 15-17 and 28-30, pg. 27, lines 1-9); determining an averaged composite quality index for communications occurring through the second communications network, said averaged composite quality index being an average value resulting from a mixture of first communications occurring without the degraded performance characteristic and second communications occurring with the degraded performance characteristic (e.g., Fig. 6, step 614; pg. 29, line 27 – pg. 30, line 14); and expressing the required quality performance of the second communication service as a proportion between said first communications and said second communications required to maintain said averaged composite quality index acceptably near the value of the first quality index (e.g., Fig. 6, step 620; pg. 30, lines 16-21).

Claim 22 recites a method for determining how a first performance characteristic having a given value affects the quality of a communication service (e.g., Fig. 7; pg. 30, lines 28 – pg. 31, line 4), comprising obtaining an original data set pertaining to occurrences of various values of at least one second performance characteristic within the communication service (e.g., Fig. 7, step 704, pg. 31, lines 6-9); determining the effect that the first performance characteristic has upon the occurrences of values of the second performance characteristic (e.g., Fig. 7, steps 706-710; pg. 31, lines 16-29); computing an altered data set by changing, in the original data set, the

occurrences of values of the second performance characteristic assuming the first performance characteristic is set to said given value (e.g., Fig. 7, step 712; pg. 32, lines 1-9); and computing a quality index for the communication service based upon the altered data set (e.g., Fig. 7, step 716; pg. 32, lines 18-20).

Claim 26 recites a method for determining acceptable quality of a second communication service, in comparison to a first communication service which exhibits acceptable quality (e.g., Fig. 6; pg. 26, lines 12-15), comprising measuring at least one performance characteristic for the first communication service (e.g., Fig. 6, step 604; pg. 26, lines 15-17 and 28-30, pg. 27, lines 1-9); from the measured performance characteristic for the first communication service, determining a first mean opinion score pertaining to the first communication service (e.g., Fig. 6, step 6006; pg. 27, lines 11-15); measuring at least one performance characteristic for the second communication service (e.g., Fig. 6, step 602; pg. 26, lines 15-17 and 28-30, pg. 27, lines 1-9); from the measured performance characteristic for the second communication service, determining a second mean opinion score pertaining to the second communication service (e.g., Fig. 6, step 610; pg. 28, lines 13-15); and determining that the second communication service is of unacceptable quality if the second mean opinion score is less than the first opinion score by more than a perceptible difference threshold (e.g., Fig. 6, steps 614-618; pg. 29, line 12-pg. 30, line 14).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

A. Claim 1 stands rejected under 35 U.S.C. § 102(e) as anticipated by FARRIS et al. (U.S. Patent No. 6,574,216).

B. Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of RANDIC (U.S. Patent No. 6,275,797).

C. Claim 4 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of RANDIC, and further in view of GIERS (U.S. Patent No. 4,015,480).

D. Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of RANDIC, and further in view of SAND (U.S. Patent No. 6,512,746).

E. Claims 11, 17, and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of SAND, and further in view of OOUCHI (U.S. Patent No. 5,282,203).

F. Claims 12-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of SAND, further in view of OOUCHI, and further in view of well established teaching in the art.

G. Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of RANDIC, and further in view of well established teaching in the art.

H. Claim 21 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of RANDIC, and further in view of ITU-T P.830.

I. Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over SAND in view of SHAFFER (U.S. Patent No. 5,898,668), and further in view of well established teaching in the art.

J. Claim 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over SAND in view of SHAFFER, and further in view GIERS.

K. Claims 2, 3, 7, 8, 20, 26, 27, and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of RANDIC, and further in view of ITU-T P.830.

L. Claims 15, 16, 24 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of SAND, and further in view of ITU-T P.830.

M. Claims 29-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. in view of RANDIC, further in view of ITU P.830, and further in view of well established teaching in the art, and still further in view of SAND.

VII. ARGUMENTS

A. The rejection under 35 U.S.C. § 102(e) based on FARRIS et al. (U.S. Patent No. 6,574,216) should be reversed.

1. Claim 1.

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention always rests upon the Examiner. In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987).

Appellant's claim 1 is directed to a method for determining acceptability of quality of a second communications service, in comparison to a first communications service which is deemed to exhibit acceptable quality. The method includes obtaining a first quality index pertaining to the first communications service; obtaining a second quality index pertaining to the

second communications service; and determining that the second communication service is of unacceptable quality if the second quality index differs from the first quality index service by more than a selected amount. Appellant respectfully submit that FARRIS et al. does not disclose or suggest the combination of features recited in Appellant's claim 1.

For example, FARRIS et al. does not disclose or suggest obtaining a first quality index pertaining to the first communications service, as required by claim 1. The Examiner relied upon col. 4, lines 63-67 and col. 8, lines 15-40 of FARRIS et al. as allegedly disclosing this feature (Office Action, pg. 3). Appellant respectfully submit that these sections of FARRIS et al. do not disclose or suggest obtaining a first quality index pertaining to the first communications service, as recited in claim 1.

At col. 4, lines 63 to col. 5, line 2, FARRIS et al. discloses:

Monitoring of the data network, which may be the Internet, may be under control of a module that interfaces between the data network and the public switched telephone network. The caller's predefined acceptable level of quality, stored in AIN ISCP may be obtained by the module for comparison with monitored levels.

At col. 8, lines 15-40, FARRIS et al. discloses:

FIG. 3 is a simplified block diagram of an AIN controlled PSTN, such as the type shown in FIG. 2, which includes architecture for implementing Internet routing in accordance with one preferred embodiment of the invention. It is to be understood that the Internet representation in this figure, as well as throughout this disclosure, is illustrative of any packet network of routers that allows voice traffic to be packetized and sent over a shared network. The use of the phrases "Internet" and "data packet network" or the like are used interchangeably throughout this description. SSP capable central offices 13 and 17, which may be located in the same or different states and regions, are connected by trunks 14 and 16 respectively to the PSTN indicated by a cloud 10. Each central office is connected by local loops to subscribers' customer premises equipment (CPE) such as telephone terminals 12 and PC 90. The telephone 12 may be a standard telephone used for Plain Old Telephone Service (POTS), with conversion of analog voice to digital signals performed at a central office, or a so-called "Internet Phone" that outputs digital voice signals. The SSPs 13 and 17 are connected by CCIS links to STP 31 which in turn may be connected

to ISCP 40. While the STP functionality is here shown as constituting a single STP it will be appreciated that this is for the purpose of simplicity only and that a hierarchy of STPs may be involved.

These sections of FARRIS et al. disclose a system for interfacing PSTN and data packet networks, such that a voice call through the data network may be allowed if it meets or exceeds a user's acceptable level of service. As stated in col. 4, lines 50-54, the user's acceptable level of service may be predefined with a threshold quality level stored in the user's Call Processing Record (CPR) in the AIN Integrated Services Control Point (ISCP). Even more particularly, col. 4, lines 14-18 indicates that the user's acceptable level of service may be predefined as, for example, 2.4 or 4.8 kbs to be stored in the CPR. Clearly, this predefined acceptable level of service, to which the monitored service is compared does **not pertain to the first communications service** (e.g., PSTN), much less that this predefined level represents the quality of the first communication service, as required by claim 1.

In making his argument, the Examiner appears to interpret the language of FARRIS et al. as indicating that a voice quality threshold is established based upon a normal end-to-end voice circuit. However, this interpretation finds no support in the language of FARRIS et al. In particular, FARRIS provides no teaching or suggestion that the "stored threshold" is based in any way upon "a normal end-to-end voice circuit" as argued by the Examiner (see, e.g., Final Office Action, pg. 40), but rather appears to be based strictly on packet-based quality monitoring principles, such as throughput, packet loss, etc.

Furthermore, the Examiner relies upon FARRIS et al., in FIG. 3 and col. 8, lines 15-40 for allegedly disclosing that an acceptable performance quality of PSTN 10 is determined based on the switched circuit performance quality threshold/criteria used in the PSTN, and thus is

relevant to the PSTN services. (Office Action, pg. 40). As recited above, col. 8, lines 15-40 relate to a general description of the interrelation between Internet 50 and PSTN 10 in FIG. 3 and does not include any discussion relating to a caller accepted quality threshold, as indicated by the Examiner. Clearly, this section of FARRIS et al. in no way disclose or remotely suggests that a first quality index is obtained pertaining to the first communication service, as recited in claim 1.

For at least the foregoing reasons, Appellant submits that the rejection of claim 1 under 35 U.S.C. § 102(e) based on FARRIS et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

B. The rejection under 35 U.S.C. § 103(a) based on FARRIS et al. (U.S. Patent No. 6,574,216) in view of RANDIC (U.S. Patent No. 6,275,797) should be reversed.

1. Claim 6.

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention always rests upon the Examiner. In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In rejecting a claim under 35 U.S.C. § 103, the Examiner must provide a factual basis to support the conclusion of obviousness. In re Warner, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). Based upon the objective evidence of record, the Examiner is required to make the factual inquiries mandated by Graham v. John Deere Co., 86 S.Ct. 684, 383 U.S. 1, 148 USPQ 459 (1966). The Examiner is also required to explain how and why one having ordinary skill in the art would have been realistically motivated to modify an applied reference and/or combine applied references to arrive at the claimed invention. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

In establishing the requisite motivation, it has been consistently held that the requisite

motivation to support the conclusion of obviousness is not an abstract concept, but must stem from the prior art as a whole to impel one having ordinary skill in the art to modify a reference or to combine references with a reasonable expectation of successfully achieving some particular realistic objective. See, for example, Interconnect Planning Corp. v. Feil, 227 USPQ 543 (Fed. Cir. 1985). Consistent legal precedent admonishes against the indiscriminate combination of prior art references. Carella v. Starlight Archery, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985).

Appellant's claim 6 is directed toward a method for determining the quality performance required of a second communications service in comparison to a first communications service, comprising the steps of: obtaining a first quality index representing the quality of the first communication service; determining the effect of at least one performance characteristic of the second communication service upon a second quality index pertaining to the second communication service; and determining a value for the performance characteristic required to maintain the second quality index acceptably near the value of the first quality index. FARRIS et al. and RANDIC, whether taken alone, or in any reasonable combination, do not disclose or suggest this combination of features.

For example, FARRIS et al. and RANDIC do not disclose or suggest obtaining a first quality index representing the quality of the first communication service, as required by claim 6. The Examiner relied upon col. 4, lines 63-67 and col. 8, lines 15-40 of FARRIS et al. as allegedly disclosing this feature (Office Action, pg. 3). Appellant respectfully submits that these sections of FARRIS et al. do not disclose or suggest obtaining a first quality index representing the quality

of the first communication service, as recited in claim 6.

At col. 4, lines 63 to col. 5, line 2, FARRIS et al. discloses:

Monitoring of the data network, which may be the Internet, may be under control of a module that interfaces between the data network and the public switched telephone network. The caller's predefined acceptable level of quality, stored in AIN ISCP may be obtained by the module for comparison with monitored levels.

At col. 8, lines 15-40, FARRIS et al. discloses:

FIG. 3 is a simplified block diagram of an AIN controlled PSTN, such as the type shown in FIG. 2, which includes architecture for implementing Internet routing in accordance with one preferred embodiment of the invention. It is to be understood that the Internet representation in this figure, as well as throughout this disclosure, is illustrative of any packet network of routers that allows voice traffic to be packetized and sent over a shared network. The use of the phrases "Internet" and "data packet network" or the like are used interchangeably throughout this description. SSP capable central offices 13 and 17, which may be located in the same or different states and regions, are connected by trunks 14 and 16 respectively to the PSTN indicated by a cloud 10. Each central office is connected by local loops to subscribers' customer premises equipment (CPE) such as telephone terminals 12 and PC 90. The telephone 12 may be a standard telephone used for Plain Old Telephone Service (POTS), with conversion of analog voice to digital signals performed at a central office, or a so-called "Internet Phone" that outputs digital voice signals. The SSPs 13 and 17 are connected by CCIS links to STP 31 which in turn may be connected to ISCP 40. While the STP functionality is here shown as constituting a single STP it will be appreciated that this is for the purpose of simplicity only and that a hierarchy of STPs may be involved.

These sections of FARRIS et al. disclose a system for interfacing PSTN and data packet networks, such that a voice call through the data network may be allowed if it meets or exceeds a user's acceptable level of service. As stated in col. 4, lines 50-54, the user's acceptable level of service may be predefined with a threshold quality level stored in the user's Call Processing Record (CPR) in the AIN Integrated Services Control Point (ISCP). Even more particularly, col. 4, lines 14-18 indicates that the user's acceptable level of service may be predefined as, for example, 2.4 or 4.8 kbs to be stored in the CPR. Clearly, this predefined acceptable level of

service, to which the monitored service is compared does **not pertain to the first communications service** (e.g., PSTN) at all, much less the quality of the first communication service, as required by claim 6.

In making his argument, the Examiner appears to interpret the language of FARRIS et al. as indicating that a voice quality threshold is established based upon a normal end-to-end voice circuit. However, this interpretation finds no support in the language of FARRIS et al. In particular, FARRIS provides no teaching or suggestion that the “stored threshold” is based in any way upon “a normal end-to-end voice circuit” as argued by the Examiner, but rather appears to be based strictly on packet-based quality monitoring principles, such as throughput, packet loss, etc.

Furthermore, the Examiner relies upon FARRIS et al., in FIG. 3 and col. 8, lines 15-40 for allegedly disclosing that an acceptable performance quality of PSTN 10 is determined based on the switched circuit performance quality threshold/criteria used in the PSTN, and thus is relevant to the PSTN services. As recited above, the disclosure of FARRIS et al. at col. 8, lines 15-40 relates to a general description of the interrelation between Internet 50 and PSTN 10 in FIG. 3 and does not include any discussion relating to a caller accepted quality threshold, as indicated by the Examiner. Clearly, this section of FARRIS et al. in no way disclose or remotely suggests that a first quality index is obtained representing the quality of the first communications service, as recited in claim 6.

FARRIS et al. and RANDIC also do not disclose determining a value for the performance characteristic required to maintain a second quality index acceptably near a value of the first quality index as also recited in claim 6. The Examiner appears to admit that FARRIS et al. does

not disclose this feature and relies on RANDIC to remedy this deficiency. Appellant respectfully submits that RANDIC likewise fails to disclose or suggest the recited limitation. In making the rejection, the Examiner relied upon Fig. 3 and col. 7, lines 1-29 of RANDIC for allegedly disclosing this feature (Office Action, pg. 6). Appellant respectfully submits that these sections of RANDIC do not disclose or suggest determining a value for the performance characteristic required to maintain the second quality index acceptable near the value of the first quality index, as recited in claim 6.

At col. 7, lines 1-29, RANDIC discloses:

Voice path quality factor 27 can also be used to determine a threshold level of voice path operation during the system level test in the design and manufacturing phase of communication networks 10 and 30. Additionally, voice quality factor 27 can be used to develop the network node packet queueing or prioritizing algorithms.

For example, the voice quality factor 27 can be used to identify routers with under or over utilized bandwidth and to predict how changes in the number or connectivity of network nodes or elements will affect voice quality. Another example of the usefulness of voice quality factor 27 is as follows. Computer 12 transmits the voice test file 23 to computer 14. If the voice path quality factor 27 is below a threshold factor, say less than 75%, then no voice communication is initiated between a user on computer 12 and a user on computer 14. Alternatively, the computer 12 determines that to improve the voice path quality factor to an acceptable level, the sampling rate for converting voice signals into digitized data must be increased. Thus, the computer 12 automatically increases the sampling rate for the capture and digitization of voice test file 23.

Voice path quality factor 27 can also be used by ISPs, like ISP 32A, to address voice path quality in a distributed network. For example, if voice path quality factor 27 indicates a less than suitable voice path, the ISP 32A suggests a different higher bandwidth communication link to WAN 11 which allows a higher voice sample rate that improves voice path quality factor 27 without reducing the rate at which the voice data is transmitted.

This section of RANDIC discloses a system wherein controlled non-distorted and distorted voice test signals are transmitted through a **packet network**. Once received, the voice signals are transformed into text files. These text files are compared, to generate a voice path

quality factor. (See, e.g., col. 2, lines 29-46). The value associated with the voice path quality factor, if below a threshold, may be maximized by automatically modifying the sampling rate for converting the voice signals into digitized data. Contrary to the Examiner's position, the distorted and non-distorted data paths through network 42 are not analogous to the first and second communications services, as recited in claim 6, as each of these paths take place through a common communications service, i.e., a packet based network, albeit through different paths.

In fact, the disclosure of RANDIC teaches away from using a first quality index representing the quality of the first communications service to quantify or determine a call quality in a second communications service. In col. 2, lines 5-22, RANDIC discloses that subjective Mean Opinion Score (MOS) testing is inherently unreliable and does not provide qualitative, numeric results or scores that can be easily evaluated by others or by computers. Accordingly, the disclosure of RANDIC continues to provide a non-subjective, packet-only basis for determining the quality of a packet-based voice call in the manner described in detail above. RANDIC never addresses and correlation between the subjective MOS measurements of Col. 2 and this objectively measured voice path quality factor.

Counter to this concept, the invention of claim 6 requires obtaining a first quality index representing the quality of the first communications service; determining the effect of at least one performance characteristic upon a second quality index pertaining to the second communications service; and determining a value for the performance characteristic required to maintain the second quality index acceptably near the value of the first quality index. In this manner, the first communications service index may be leveraged to provide a basis for determining a threshold value for the performance characteristic that maintains the second communications service index

acceptably near the first communications service index. FARRIS et al. and RANDIC, either alone, or in any reasonable combination, clearly fail to disclose or even remotely suggest this combination of features. For at least this reason, claim 6 is believed to be patentable over the combination of FARRIS et al. and RANDIC. In accordance with Applicant's teachings, the act of determining how the performance characteristic affects the second quality index allows for deterministically establishing a particular threshold value to achieve a desired level of quality relative to first quality index. Neither FARRIS et al. nor RANDIC provide any guidance as to how such a threshold value would be decided. Rather, a user implementing the teachings of FARRIS et al. and RANDIC is left to trial-and-error to determine acceptable thresholds for the objectively measurable characteristics.

For at least the foregoing reasons, Appellant submits that the rejection of claim 6 under 35 U.S.C. § 103(a) based on FARRIS et al. and RANDIC is improper. Accordingly, Appellant requests that the rejection be reversed.

C. The rejections under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. (U.S. Patent No. 6,574,216) in view of RANDIC (U.S. Patent No. 6,275,797), and further in view of GIERS (U.S. Patent No. 4,015,480) should be reversed.

1. Claims 4 and 5.

As stated above, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner.

With these principles in mind, Appellant submits that dependent claim 4 is patentable over FARRIS et al., RANDIC, and GIERS. Dependent claim 4 recites that obtaining a quality index pertaining to the second communications service, comprises the steps of measuring

performance characteristics of the second network, and computing an expected quality index for the second communications service. Initially, it should be noted that claim 4 depends from claim 1. The disclosures of RANDIC and GIERs do not cure the deficiency in the disclosure of FARRIS et al. identified above, with respect to claim 1. Therefore, claim 4 is patentable over FARRIS et al., RANDIC, and GIERs, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

Further, neither FARRIS et al., RANDIC, nor GIERs, whether taken alone or in any reasonable combination, discloses each and every element of claim 4. For example, FARRIS et al., RANDIC, and GIERs do not disclose or suggest computing an expected quality index for the second communications service. The Examiner acknowledged that FARRIS et al. fails to disclose or suggest computing an expected quality index for the second communications service, as recited in claim 4 (Office Action, pp. 7-8). To remedy this deficiency, the Examiner relied upon voice quality factor 52 of Fig. 3 and col. 7, lines 1-29 of RANDIC for allegedly disclosing this feature (Office Action, pg. 8). Appellant respectfully submits these sections of RANDIC do not disclose or suggest computing an expected quality index for the second communications service, as recited in claim 4.

At col. 7, lines 1-29, RANDIC discloses:

Voice path quality factor 27 can also be used to determine a threshold level of voice path operation during the system level test in the design and manufacturing phase of communication networks 10 and 30. Additionally, voice quality factor 27 can be used to develop the network node packet queueing or prioritizing algorithms.

For example, the voice quality factor 27 can be used to identify routers with under or over utilized bandwidth and to predict how changes in the number or connectivity of network nodes or elements will affect voice quality. Another example of the usefulness of voice quality factor 27 is as follows. Computer 12 transmits the voice test file 23 to computer 14. If the voice path quality factor 27 is below a threshold factor, say less than

75%, then no voice communication is initiated between a user on computer 12 and a user on computer 14. Alternatively, the computer 12 determines that to improve the voice path quality factor to an acceptable level, the sampling rate for converting voice signals into digitized data must be increased. Thus, the computer 12 automatically increases the sampling rate for the capture and digitization of voice test file 23.

Voice path quality factor 27 can also be used by ISPs, like ISP 32A, to address voice path quality in a distributed network. For example, if voice path quality factor 27 indicates a less than suitable voice path, the ISP 32A suggests a different higher bandwidth communication link to WAN 11 which allows a higher voice sample rate that improves voice path quality factor 27 without reducing the rate at which the voice data is transmitted.

The cited sections of RANDIC disclose a system wherein controlled non-distorted and distorted voice test signals are transmitted through a packet network. Once received, the voice signals are transformed into text files. These text files are compared, to generate a voice path quality factor 52. (See, e.g., Fig. 3, col. 2, lines 29-46). The value associated with the voice path quality factor 52, if below a threshold, may be maximized by automatically modifying the sampling rate for converting the voice signals into digitized data. Contrary to the Examiner's position, the voice quality factor is not an "expected" value, but is objectively and predictably generated based upon a comparison of the distorted and non-distorted text files. Clearly, the voice quality factor of RANDIC is not an "expected" quality index, as required by claim 4.

Appellant respectfully submits that the disclosure of GIERS does not remedy the deficiencies of FARRIS et al. and RANDIC noted above. For at least this reason, claim 4 is believed to be patentable over the combination of FARRIS et al., RANDIC, and GIERS.

For at least the foregoing reasons, Appellant submits that the rejections of claims 4 and 5 under 35 U.S.C. § 103(a) based on FARRIS et al., RANDIC, and GIERS are improper. Accordingly, Appellant requests that the rejections be reversed.

D. The rejections under 35 U.S.C. § 103(a) as being unpatentable over FARRIS

et al. (U.S. Patent No. 6,574,216) in view of RANDIC (U.S. Patent No. 6,275,797), and further in view of SAND (U.S. Patent No. 6,512,746) should be reversed.

1. Claims 9 and 10.

As stated above, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner.

Appellant respectfully submits that dependent claims 9 and 10 are patentable over FARRIS et al., RANDIC, and SAND. Claims 9 and 10 depend from claim 6. The disclosure of SAND does not cure the deficiency in the disclosures of FARRIS et al. and RANDIC identified above, with respect to claim 6. Therefore, claims 9 and 10 are patentable over FARRIS et al., RANDIC, and SAND, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 6.

For at least the foregoing reasons, Appellant submits that the rejection of claims 9 and 10 under 35 U.S.C. § 103(a) based on FARRIS et al., RANDIC, and SAND are improper. Accordingly, Appellant requests that the rejections be reversed.

E. The rejections under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. (U.S. Patent No. 6,574,216) in view of SAND (U.S. Patent No. 6,512,746) and further in view of OOUCHI (U.S. Patent No. 5,282,203) should be reversed.

1. Claims 11, 17, and 18.

As stated above, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner.

With these principles in mind, Appellant submits that independent claim 11 is patentable over FARRIS et al., SAND, and OOUCHI. Independent claim 11 is directed to a method for

determining the quality performance required of a second communications service in comparison to a first communications service. The method includes obtaining a first quality index representing the quality of the first communication service; determining the effect of a first performance characteristic of the second communication service upon a second quality index pertaining to the second communication service; determining the effect of a second performance characteristic of the second communication service upon the second quality index pertaining to the second communication service; assuming a selected value for the first performance characteristic; and in the context of the selected value for the first performance characteristic, determining a value for the second performance characteristic required to maintain the second quality index acceptably near the value of the first quality index. Appellant respectfully submit that FARRIS et al. does not disclose or suggest the combination of features recited in Appellant's claim 11.

For example, FARRIS et al. does not disclose or suggest obtaining a first quality index representing the quality of the first communication service, as required by claim 11. The Examiner relied upon col. 4, lines 63-67 and col. 8, lines 15-40 of FARRIS et al. as allegedly disclosing this feature (Office Action, pg. 3). Appellant respectfully submits that these sections of FARRIS et al. do not disclose or suggest obtaining a first quality index pertaining to the first communication service, as recited in claim 11.

At col. 4, lines 63 to col. 5, line 2, FARRIS et al. discloses:

Monitoring of the data network, which may be the Internet, may be under control of a module that interfaces between the data network and the public switched telephone network. The caller's predefined acceptable level of quality, stored in AIN ISCP may be obtained by the module for comparison with monitored levels.

At col. 8, lines 15-40, FARRIS et al. discloses:

FIG. 3 is a simplified block diagram of an AIN controlled PSTN, such as the type shown in FIG. 2, which includes architecture for implementing Internet routing in accordance with one preferred embodiment of the invention. It is to be understood that the Internet representation in this figure, as well as throughout this disclosure, is illustrative of any packet network of routers that allows voice traffic to be packetized and sent over a shared network. The use of the phrases "Internet" and "data packet network" or the like are used interchangeably throughout this description. SSP capable central offices 13 and 17, which may be located in the same or different states and regions, are connected by trunks 14 and 16 respectively to the PSTN indicated by a cloud 10. Each central office is connected by local loops to subscribers' customer premises equipment (CPE) such as telephone terminals 12 and PC 90. The telephone 12 may be a standard telephone used for Plain Old Telephone Service (POTS), with conversion of analog voice to digital signals performed at a central office, or a so-called "Internet Phone" that outputs digital voice signals. The SSPs 13 and 17 are connected by CCIS links to STP 31 which in turn may be connected to ISCP 40. While the STP functionality is here shown as constituting a single STP it will be appreciated that this is for the purpose of simplicity only and that a hierarchy of STPs may be involved.

These sections of FARRIS et al. disclose a system for interfacing PSTN and data packet networks, such that a voice call through the data network may be allowed if it meets or exceeds a user's acceptable level of service. As stated in col. 4, lines 50-54, the user's acceptable level of service may be predefined with a threshold quality level stored in the user's Call Processing Record (CPR) in the AIN Integrated Services Control Point (ISCP). Even more particularly, col. 4, lines 14-18 indicates that the user's acceptable level of service may be predefined as, for example, 2.4 or 4.8 kbs to be stored in the CPR. Clearly, this predefined acceptable level of service, to which the monitored service is compared does **not pertain to the first communications service** (e.g., PSTN), much less to the quality of the first communication service, as recited by claim 11.

In making his argument, the Examiner appears to interpret the language of FARRIS et al. as indicating that a voice quality threshold is established based upon a normal end-to-end voice

circuit. However, this interpretation finds no support in the language of FARRIS et al. In particular, FARRIS provides no teaching or suggestion that the “stored threshold” is based in any way upon “a normal end-to-end voice circuit” as argued by the Examiner (see, e.g., Office Action, pg. 40), but rather appears to be based strictly on packet-based quality monitoring principles, such as throughput, packet loss, etc.

Furthermore, the Examiner relies upon FARRIS et al., in FIG. 3 and col. 8, lines 15-40 for allegedly disclosing that an acceptable performance quality of PSTN 10 is determined based on the switched circuit performance quality threshold/criteria used in the PSTN, and thus is relevant to the PSTN services. (Office Action, pg. 40). As recited above, col. 8, lines 15-40 relate to a general description of the interrelation between Internet 50 and PSTN 10 in FIG. 3 and do not include any discussion relating to a caller accepted quality threshold, as indicated by the Examiner. Clearly, this section of FARRIS et al. in no way disclose or remotely suggests that a first quality index is obtained pertaining to the first communication service, as recited in claim 11.

The disclosures of SAND and OOUCHI do not cure the deficiencies in the disclosure of FARRIS et al. identified above, with respect to claim 11. For at least the foregoing reasons, Appellant submits that the rejection of claims 11, 17, and 18 under 35 U.S.C. § 103(a) over FARRIS et al., in view of SAND, and further in view of OOUCHI is improper. Accordingly, Appellant requests that the rejection be reversed.

F. The rejections under 35 U.S.C. § 103(a) as being unpatentable over FARRIS et al. (U.S. Patent No. 6,574,216) in view of SAND (U.S. Patent No. 6,512,746), further in view of OOUCHI (U.S. Patent No. 5,282,203), and still further in view of well established

teaching in the art should be reversed.

1. Claims 12-14.

As stated above, the initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Examiner. With this principle in mind, Appellant submits that dependent claims 12-14 are patentable over FARRIS et al., SAND, OOUCHI, and the Examiner's alleged well established teaching in the art. Claims 12-14 depend from claim 11. The disclosure of the Examiner's well established teaching in the art does not cure the deficiency in the disclosures of FARRIS et al., SAND, and OOUCHI identified above, with respect to claim 11. Therefore, claims 12-14 are patentable over FARRIS et al., SAND, OOUCHI, and the alleged well established teaching in the art whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 11.

For at least the foregoing reasons, Appellant submits that the rejection of claims 12-14 under 35 U.S.C. § 103(a) based on FARRIS et al., SAND, OOUCHI, and the alleged well established teaching in the art are improper. Accordingly, Appellant requests that the rejections be reversed.

G. The rejection under 35 U.S.C. § 103(a) based on FARRIS et al. (U.S. Patent No. 6,574,216), in view of RANDIC (U.S. Patent No. 6,275,797), and further in view of the alleged well established teaching in the art, should be reversed.

1. Claim 19.

As stated above, the initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention always rests upon the Examiner. Appellant's claim 19 is directed toward a method for determining the quality performance required of a second communications service

in comparison to a first communications service comprising the steps of: obtaining a first quality index representing the quality of the first communication service; determining a second quality index representing the quality of the second communication service subject to at least one degraded performance characteristic; determining an averaged composite quality index for communications occurring through the second communications network, said averaged composite quality index being an average value resulting from a mixture of first communications occurring without the degraded performance characteristic and second communications occurring with the degraded performance characteristic; and expressing the required quality performance of the second communication service as a proportion between said first communications and said second communications required to maintain said averaged composite quality index acceptably near the value of the first quality index. FARRIS et al., RANDIC, and the Examiner's alleged well established teaching in the art, whether taken alone, or in any reasonable combination, do not disclose or suggest the combination of features recited in Appellant's claim 19.

For example, FARRIS et al., RANDIC et al. and the Examiner's alleged well established teaching in the art do not disclose or suggest obtaining a first quality index representing the quality of the first communication service, as required by claim 19. The Examiner relied upon col. 4, lines 63-67 and col. 8, lines 15-40 of FARRIS et al. as allegedly disclosing this feature (Office Action, pg. 17). Appellant respectfully submits that these sections of FARRIS et al. do not disclose or suggest obtaining a first quality index representing the quality of the first communication service, as recited in claim 19.

At col. 4, lines 63 to col. 5, line 2, FARRIS et al. discloses:

Monitoring of the data network, which may be the Internet, may be under control of a

module that interfaces between the data network and the public switched telephone network. The caller's predefined acceptable level of quality, stored in AIN ISCP may be obtained by the module for comparison with monitored levels.

At col. 8, lines 15-40, FARRIS et al. discloses:

FIG. 3 is a simplified block diagram of an AIN controlled PSTN, such as the type shown in FIG. 2, which includes architecture for implementing Internet routing in accordance with one preferred embodiment of the invention. It is to be understood that the Internet representation in this figure, as well as throughout this disclosure, is illustrative of any packet network of routers that allows voice traffic to be packetized and sent over a shared network. The use of the phrases "Internet" and "data packet network" or the like are used interchangeably throughout this description. SSP capable central offices 13 and 17, which may be located in the same or different states and regions, are connected by trunks 14 and 16 respectively to the PSTN indicated by a cloud 10. Each central office is connected by local loops to subscribers' customer premises equipment (CPE) such as telephone terminals 12 and PC 90. The telephone 12 may be a standard telephone used for Plain Old Telephone Service (POTS), with conversion of analog voice to digital signals performed at a central office, or a so-called "Internet Phone" that outputs digital voice signals. The SSPs 13 and 17 are connected by CCIS links to STP 31 which in turn may be connected to ISCP 40. While the STP functionality is here shown as constituting a single STP it will be appreciated that this is for the purpose of simplicity only and that a hierarchy of STPs may be involved.

These sections of FARRIS et al. disclose a system for interfacing PSTN and data packet networks, such that a voice call through the data network may be allowed if it meets or exceeds a user's acceptable level of service. As stated in col. 4, lines 50-54, the user's acceptable level of service may be predefined with a threshold quality level stored in the user's Call Processing Record (CPR) in the AIN Integrated Services Control Point (ISCP). Even more particularly, col. 4, lines 14-18 indicates that the user's acceptable level of service may be predefined as, for example, 2.4 or 4.8 kbs to be stored in the CPR. Clearly, this predefined acceptable level of service, to which the monitored service is compared is **not related to the first communication service** (e.g., PSTN), much less that the predefined level represents the quality of the first communication service, as recited in claim 19.

In making his argument, the Examiner appears to interpret the language of FARRIS et al. as indicating that a voice quality threshold is established based upon a normal end-to-end voice circuit. However, this interpretation finds no support in the language of FARRIS et al. In particular, FARRIS provides no teaching or suggestion that the “stored threshold” is based in any way upon “a normal end-to-end voice circuit” as argued by the Examiner, but rather appears to be based strictly on packet-based quality monitoring principles, such as throughput, packet loss, etc.

Furthermore, the Examiner relies upon FARRIS et al., in FIG. 3 and col. 8, lines 15-40 for allegedly disclosing that an acceptable performance quality of PSTN 10 is determined based on the switched circuit performance quality threshold/criteria used in the PSTN, and thus is relevant to the PSTN services. As recited above, the disclosure of FARRIS et al. at col. 8, lines 15-40 relates to a general description of the interrelation between Internet 50 and PSTN 10 in FIG. 3 and does not include any discussion relating to a caller accepted quality threshold, as indicated by the Examiner. Clearly, this section of FARRIS et al. in no way disclose or remotely suggests that a first quality index is obtained representing the quality of the first communication service, as recited in claim 19.

For at least the foregoing reasons, Appellant submits that the rejection of claim 19 under 35 U.S.C. § 103(a) based on FARRIS et al., RANDIC, and the alleged well established teaching in the art is improper. Accordingly, Appellant requests that the rejection be reversed.

H. The rejection under 35 U.S.C. § 103(a) based on FARRIS et al. (U.S. Patent No. 6,574,216), in view of RANDIC (U.S. Patent No. 6,275,797), and further in view ITU-T P.830, should be reversed.

1. Claim 21.

As stated above, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner. With this principle in mind, Appellant submits that dependent claim 21 is patentable over FARRIS et al., RANDIC, and ITU-T P.830. Claim 21 depends from claim 19. The disclosure of the ITU-T P.830 does not cure the deficiency in the disclosures of FARRIS et al., SAND, and OOUCHI identified above, with respect to claim 19. Therefore, claim 21 is patentable over FARRIS et al., RANDIC, and ITU-T P.830, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 19.

For at least the foregoing reasons, Appellant submits that the rejection of claim 21 under 35 U.S.C. § 103(a) based on FARRIS et al., RANDIC, and ITU-T P.830 is improper. Accordingly, Appellant requests that the rejection be reversed.

I. The rejection under 35 U.S.C. § 103(a) based on SAND et al. (U.S. Patent No. 6,512,746), in view of SHAFFER (U.S. Patent No. 5,898,668), and further in view of the alleged well established teaching in the art, should be reversed.

1. Claim 22.

As stated above, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner. Appellant's independent claim 22 is directed toward a method for determining how a first performance characteristic having a given value affects the quality of a communication service. The method includes obtaining an original data set pertaining to occurrences of various values of at least one second performance characteristic within the communication service; determining the effect that the first performance

characteristic has upon the occurrences of values of the second performance characteristic; computing an altered data set by changing, in the original data set, the occurrences of values of the second performance characteristic assuming the first performance characteristic is set to said given value; and computing a quality index for the communication service based upon the altered data set. The cited combination of SAND, SHAFFER, and the alleged well known teaching in the art fails to disclose or suggest the combination of features recited in Appellant's claim 22.

In particular, the combination of SAND, SHAFFER, and well known teaching in the art fails to disclose or suggest computing an altered data set by changing, in the original data set, the occurrences of values of the second performance characteristic *assuming the first performance characteristic is set to said given value*. In making the rejection, the Examiner relied upon step 80 of Fig. 3 and col. 6, lines 5-44 of SHAFFER for allegedly disclosing this feature (Office Action, pg. 24). Appellant respectfully submits that these sections of SHAFFER do not disclose or suggest computing an altered data set by changing, in the original data set, the occurrences of values of the second performance characteristic assuming the first performance characteristic is set to said given value, as recited in claim 22.

At col. 6, lines 5-44, SHAFFER discloses:

A second input 40 of the mode select/controller device is the information from the tariff table 30, which stores identification of the costs of utilizing the different modes available to the integrated network. Often, the tariffs are not fixed. For example, analog leased lines are typically less costly to use during off-hours, such as weekends. The tariff table preferably has sufficient information to allow an accurate identification of the present-time tariff for each of the available modes.

If more than one available mode is identified by the mode select/controller device 34 as satisfying all of the QoS requirements for a particular session, the mode select/controller device 34 determines which of the designated modes is the least expensive to implement. The tariff that is associated with this mode is then identified as the "acceptable session tariff," since the QoS requirements at input 36 necessarily carry

this session tariff as a minimum. This mode is identified as the fallback mode, and the necessary communications resources are reserved, as previously noted.

The mode select/controller 34 has a third input 42 from the present-time quality of service table 28. As previously noted, the monitor device 24 of FIG. 1 is connected to each of the network access points 12, 14, 16, 18, 20 and 22. The monitor device may utilize any of known techniques for determining actual quality of service parameter values. For example, received packets containing multimedia information of other sessions may be monitored for the time of arrival. In addition, the length of a buffer queue feeding to a multimedia decoder is monitored. Of special interest is the case in which the buffer queue is empty as a result of a packet being lost or delayed through the network. Monitor device 24 collects statistical information relating to quality of service, e.g., delay, latency, jitter and data loss. Depending upon the type of communication (e.g., voice, video, image or data) and the decoding mechanism used, the impact to the quality of service from the delayed arrival or lost packets is assessed. This assessment is used to update the present-time quality of service table 28.

This section of SHAFFER discloses updating a QoS table 28 based upon a monitored impact to the quality of service from delayed arrival or lost packets. However, the QoS table of SHAFFER does not appear to relate lost packet / packet delay to one another. Rather, the QoS table of SHAFFER is updated based on any perceived effect on quality of service, such as packet loss or packet delay. Clearly, SHAFFER do not disclose or suggest computing an altered data set by changing, in the original data set, the occurrences of values of the second performance characteristic assuming the first performance characteristic is set to said given value, as recited in claim 22. For at least the foregoing reasons, claim 22 is patentable over the combination of SAND, SHAFFER and well known teaching in the art.

For at least the foregoing reasons, Appellant submits that the rejection of claim 22 under 35 U.S.C. § 103(a) based on SAND, SHAFFER, and the alleged well established teaching in the art is improper. Accordingly, Appellant requests that the rejection be reversed.

J. The rejection under 35 U.S.C. § 103(a) based on SAND (U.S. Patent No. 6,512,746), in view of SHAFFER (U.S. Patent No. 5,898,668), and further in view of GIERS

(U.S. Patent No. 4,015,480), should be reversed.

1. Claim 23.

As stated above, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner. Appellant submits that dependent claim 23 is patentable over SAND, SHAFFER, and GIERS. Claim 23 depends from claim 22. The disclosure of the GIERS does not cure the deficiency in the disclosures of SAND and SHAFFER identified above, with respect to claim 22. Therefore, claim 21 is patentable over SAND, SHAFFER, and GIERS, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 22.

For at least the foregoing reasons, Appellant submits that the rejection of claim 23 under 35 U.S.C. § 103(a) based on SAND, SHAFFER, and GIERS is improper. Accordingly, Appellant requests that the rejection be reversed.

K. The rejection under 35 U.S.C. § 103(a) based on FARRIS et al. (U.S. Patent No. 6,574,216), in view of RANDIC (U.S. Patent No. 6,275,797), and further in view of ITU-T P.830, should be reversed.

1. Claims 2 and 3.

As stated above, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner. Appellant submits that dependent claims 2 and 3 are patentable over FARRIS et al., RANDIC, and ITU-T P.830. Claims 2 and 3 depend from independent claim 1. The disclosures of the RANDIC and ITU-T P.830 do not cure the deficiency in the disclosure of FARRIS et al. identified above, with respect to claim 1.

Therefore, claims 2 and 3 are patentable over FARRIS et al., RANDIC, and ITU-T P.830,

whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

2. Claims 7 and 8.

Appellant submits that dependent claims 7 and 8 are patentable over FARRIS et al., RANDIC, and ITU-T P.830. Claims 7 and 8 depend from independent claim 6. The disclosure of ITU-T P.830 does not cure the deficiency in the disclosures of FARRIS et al. and RANDIC identified above, with respect to claim 6. Therefore, claims 7 and 8 are patentable over FARRIS et al., RANDIC, and ITU-T P.830, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 6.

3. Claim 20.

Appellant submits that dependent claim 20 is patentable over FARRIS et al., RANDIC, and ITU-T P.830. Claim 20 depends from independent claim 19. The disclosure of ITU-T P.830 does not cure the deficiency in the disclosures of FARRIS et al. and RANDIC identified above, with respect to claim 19. Therefore, claim 20 is patentable over FARRIS et al., RANDIC, and ITU-T P.830, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 19.

4. Claims 26-28.

Appellant's independent claim 26 is directed toward a method for determining acceptable quality of a second communication service, in comparison to a first communication service which exhibits acceptable quality, comprising measuring at least one performance characteristic for the first communication service; from the measured performance characteristic for the first communication service, determining a first mean opinion score pertaining to the first

communication service; measuring at least one performance characteristic for the second communication service; from the measured performance characteristic for the second communication service, determining a second mean opinion score pertaining to the second communication service; and determining that the second communication service is of unacceptable quality if the second mean opinion score is less than the first opinion score by more than a perceptible difference threshold. FARRIS et al., RANDIC, and ITU-T P.830, whether taken alone, or in any reasonable combination, do not disclose or suggest this combination of features.

For example, FARRIS et al., RANDIC, and ITU-T P.830 do not disclose or suggest measuring at least one performance characteristic for the first communication service, as required by claim 26. The Examiner relied upon col. 4, lines 63-67 and col. 8, lines 15-40 of FARRIS et al. as allegedly disclosing this feature (Office Action, pp. 28-29). Appellant respectfully submits that these sections of FARRIS et al. do not disclose or suggest measuring at least one performance characteristic for the first communication service, as recited in claim 26.

At col. 4, lines 63 to col. 5, line 2, FARRIS et al. discloses:

Monitoring of the data network, which may be the Internet, may be under control of a module that interfaces between the data network and the public switched telephone network. The caller's predefined acceptable level of quality, stored in AIN ISCP may be obtained by the module for comparison with monitored levels.

At col. 8, lines 15-40, FARRIS et al. discloses:

FIG. 3 is a simplified block diagram of an AIN controlled PSTN, such as the type shown in FIG. 2, which includes architecture for implementing Internet routing in accordance with one preferred embodiment of the invention. It is to be understood that the Internet representation in this figure, as well as throughout this disclosure, is illustrative of any packet network of routers that allows voice traffic to be packetized and sent over a shared network. The use of the phrases "Internet" and "data packet network" or the like are used

interchangeably throughout this description. SSP capable central offices 13 and 17, which may be located in the same or different states and regions, are connected by trunks 14 and 16 respectively to the PSTN indicated by a cloud 10. Each central office is connected by local loops to subscribers' customer premises equipment (CPE) such as telephone terminals 12 and PC 90. The telephone 12 may be a standard telephone used for Plain Old Telephone Service (POTS), with conversion of analog voice to digital signals performed at a central office, or a so-called "Internet Phone" that outputs digital voice signals. The SSPs 13 and 17 are connected by CCIS links to STP 31 which in turn may be connected to ISCP 40. While the STP functionality is here shown as constituting a single STP it will be appreciated that this is for the purpose of simplicity only and that a hierarchy of STPs may be involved.

These sections of FARRIS et al. disclose a system for interfacing PSTN and data packet networks, such that a voice call through the data network may be allowed if it meets or exceeds a user's acceptable level of service. As stated in col. 4, lines 50-54, the user's acceptable level of service may be predefined with a threshold quality level stored in the user's Call Processing Record (CPR) in the AIN Integrated Services Control Point (ISCP). Even more particularly, col. 4, lines 14-18 indicates that the user's acceptable level of service may be predefined as, for example, 2.4 or 4.8 kbs to be stored in the CPR. Clearly, this predefined acceptable level of service, to which the monitored service is compared is **not related to the first communication service** (e.g., PSTN), let alone that the predefined level relates to measuring at least one performance characteristic for the first communication service, as recited in claim 26.

In making his argument, the Examiner appears to interpret the language of FARRIS et al. as indicating that a voice quality threshold is established based upon a normal end-to-end voice circuit. However, this interpretation finds no support in the language of FARRIS et al. In particular, FARRIS provides no teaching or suggestion that the "stored threshold" is based in any way upon "a normal end-to-end voice circuit" as argued by the Examiner, but rather appears to be based strictly on packet-based quality monitoring principles, such as throughput, packet loss,

etc.

Furthermore, the Examiner relies upon FARRIS et al., in FIG. 3 and col. 8, lines 15-40 for allegedly disclosing that an acceptable performance quality of PSTN 10 is determined based on the switched circuit performance quality threshold/criteria used in the PSTN, and thus is relevant to the PSTN services. As recited above, the disclosure of FARRIS et al. at col. 8, lines 15-40 relates to a general description of the interrelation between Internet 50 and PSTN 10 in FIG. 3 and does not include any discussion relating to a caller accepted quality threshold, as indicated by the Examiner. Clearly, this section of FARRIS et al. in no way disclose or remotely measuring at least one performance characteristic for the first communication service, as recited in claim 26.

Appellants submit that dependent claims 27 and 28 are also patentable over FARRIS et al., RANDIC, and ITU-T P.830. Claims 27 and 28 depends from independent claim 26. Therefore, claims 27 and 28 are patentable over FARRIS et al., RANDIC, and ITU-T P.830, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 26.

For at least the foregoing reasons, Appellant submits that the rejections of claim 2, 3, 7, 8, 20, and 26-28 under 35 U.S.C. § 103(a) based on FARRIS et al., RANDIC, and ITU-T P.830 are improper. Accordingly, Appellant requests that the rejections be reversed.

L. The rejection under 35 U.S.C. § 103(a) based on FARRIS et al. (U.S. Patent No. 6,574,216), in view of SAND (U.S. Patent No. 6,512,746), and further in view of ITU-T P.830, should be reversed.

1. Claims 15 and 16.

As stated above, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner. Appellant respectfully submits that dependent claims 15 and 16 are patentable over FARRIS et al., SAND, and ITU-T P.830. Claims 15 and 16 depend from independent claim 11. The disclosures of the ITU-T P.830 do not cure the deficiencies in the disclosure of FARRIS et al. and SAND identified above, with respect to claim 11. Therefore, claims 15 and 16 are patentable over FARRIS et al., SAND, and ITU-T P.830, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 11.

Claims 24 and 25.

Appellant respectfully submits that dependent claims 24 and 25 are patentable over FARRIS et al., SAND, and ITU-T P.830. Claims 24 and 25 depend from independent claim 22. The disclosures of the FARRIS et al. and ITU-T P.830 do not cure the deficiencies in the disclosure of SAND identified above, with respect to claim 22. Therefore, claims 24 and 25 are patentable over FARRIS et al., SAND, and ITU-T P.830, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 22.

For at least the foregoing reasons, Appellant submits that the rejections of claim 15, 16, 24, and 25 under 35 U.S.C. § 103(a) based on FARRIS et al., RANDIC, and ITU-T P.830 are improper. Accordingly, Appellant requests that the rejections be reversed.

M. The rejection under 35 U.S.C. § 103(a) based on FARRIS et al. (U.S. Patent No. 6,574,216), in view of RANDIC (U.S. Patent No. 6,275,797), further in view of ITU-T P.830, and still further in view of the alleged well established teaching in the art, should be reversed.

1. Claims 29-31.

Appellant submits that dependent claims 29-31 are patentable over FARRIS et al., RANDIC, ITU-T P.830, and the alleged well established teaching in the art. Claims 29-31 depend from independent claim 26. The Examiner's alleged well established teaching in the art does not cure the deficiencies in the disclosures of FARRIS et al., RANDIC, and ITU-T P.830 identified above, with respect to claim 26. Therefore, claims 29-31 are patentable over FARRIS et al., RANDIC, ITU-T P.830, and the alleged well established teaching in the art, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 26.

For at least the foregoing reasons, Appellant submits that the rejections of claim 29-31 under 35 U.S.C. § 103(a) based on FARRIS et al., RANDIC, ITU-T P.830, and the alleged well established teaching in the art are improper. Accordingly, Appellant requests that the rejections be reversed.

VIII. CONCLUSION

In view of the foregoing arguments, Appellant respectfully solicits the Honorable Board to reverse the Examiner's rejections of claims 1-31 under 35 U.S.C. §§ 102 and 103.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

HARRITY & SNYDER, L.L.P.

By. 

Robin C. Clark
Registration No. 40,956

Date: September 13, 2005

11240 Waples Mill Road
Suite 300
Fairfax, Virginia 22030
(571) 432-0800

IX. CLAIM APPENDIX

1. A method for determining acceptability of quality of a second communications service, in comparison to a first communications service which is deemed to exhibit acceptable quality, comprising the steps of:

obtaining a first quality index pertaining to the first communications service;

obtaining a second quality index pertaining to the second communications service; and

determining that the second communication service is of unacceptable quality if the second quality index differs from the first quality index service by more than a selected amount.

2. The method of claim 1 wherein said first and second quality indices are mean opinion scores.

3. The method of claim 1 wherein said first and second quality indices relate to an average proportion of communications that would be rated as objectionable by users.

4. The method of claim 1 wherein obtaining a quality index pertaining to the second communications service comprises the steps of:

measuring performance characteristics of the second network; and

computing an expected quality index for the second communications service.

5. The method of claim 4 wherein said step of computing an expected quality index is performed by applying an effects matrix.

6. A method for determining the quality performance required of a second communications service in comparison to a first communications service comprising the steps of:
obtaining a first quality index representing the quality of the first communication service;
determining the effect of at least one performance characteristic of the second communication service upon a second quality index pertaining to the second communication service; and

determining a value for the performance characteristic required to maintain the second quality index acceptably near the value of the first quality index.

7. The method of claim 6 wherein said first and second quality indices are mean opinion scores.

8. The method of claim 6 wherein said first and second quality indices relate to an average proportion of communications that would be rated as objectionable by users.

9. The method of claim 6 wherein said performance characteristic is packet loss rate.

10. The method of claim 6 wherein said performance characteristic is packet delay.

11. A method for determining the quality performance required of a second communications service in comparison to a first communications service comprising the steps of:

obtaining a first quality index representing the quality of the first communication service;
determining the effect of a first performance characteristic of the second communication service upon a second quality index pertaining to the second communication service;
determining the effect of a second performance characteristic of the second communication service upon the second quality index pertaining to the second communication service;
assuming a selected value for the first performance characteristic; and
in the context of the selected value for the first performance characteristic, determining a value for the second performance characteristic required to maintain the second quality index acceptably near the value of the first quality index.

12. The method of claim 11 further comprising the step of determining that the first performance characteristic has an effect upon the second quality index that is independent of any other performance characteristics.

13. The method of claim 11 further comprising the step of selecting a first performance characteristic which has an effect upon the second quality index that is independent of any other performance characteristics.

14. The method of claim 11 further comprising the step of selecting a first performance characteristic which has an effect upon the second quality index that is independent of the second performance characteristic.

15. The method of claim 11 wherein said first and second quality indices relate to an average proportion of communications that would be rated as objectionable by users.

16. The method of claim 11 wherein said first and second quality indices are mean opinion scores.

17. The method of claim 11 wherein said first performance characteristic is packet delay.

18. The method of claim 11 wherein said second performance characteristic is packet loss rate.

19. A method for determining the quality performance required of a second communications service in comparison to a first communications service comprising the steps of:
obtaining a first quality index representing the quality of the first communication service;
determining a second quality index representing the quality of the second communication service subject to at least one degraded performance characteristic;

determining an averaged composite quality index for communications occurring through the second communications network, said averaged composite quality index being an average value resulting from a mixture of first communications occurring without the degraded performance characteristic and second communications occurring with the degraded performance

characteristic; and

expressing the required quality performance of the second communication service as a proportion between said first communications and said second communications required to maintain said averaged composite quality index acceptably near the value of the first quality index.

20. The method of claim 19 wherein said first, second, and averaged composite quality indices are mean opinion scores.

21. The method of claim 19 wherein said first, second, and averaged composite quality indices are values associated with a percentage (P) of calls or connections that elicit unusable (U), difficult (D), or irritating (I) responses (P(UDI)).

22. A method for determining how a first performance characteristic having a given value affects the quality of a communication service, the method comprising:

obtaining an original data set pertaining to occurrences of various values of at least one second performance characteristic within the communication service;

determining the effect that the first performance characteristic has upon the occurrences of values of the second performance characteristic;

computing an altered data set by changing, in the original data set, the occurrences of values of the second performance characteristic assuming the first performance characteristic is set to said given value; and

computing a quality index for the communication service based upon the altered data set.

23. The method of claim 22 wherein said step of computing a quality index is performed by convolving the altered data set with an effects matrix.

24. The method of claim 22 wherein said quality index is a mean opinion score.

25. The method of claim 22 wherein said quality index relates to an average proportion of communications that would be rated as objectionable by users.

26. A method for determining acceptable quality of a second communication service, in comparison to a first communication service which exhibits acceptable quality, comprising the steps of:

measuring at least one performance characteristic for the first communication service;
from the measured performance characteristic for the first communication service,
determining a first mean opinion score pertaining to the first communication service;
measuring at least one performance characteristic for the second communication service;
from the measured performance characteristic for the second communication service,
determining a second mean opinion score pertaining to the second communication service; and
determining that the second communication service is of unacceptable quality if the
second mean opinion score is less than the first opinion score by more than a perceptible
difference threshold.

27. The method of claim 26 further comprising the step of determining a P(UDI) value of the second communication service, said P(UDI) value relate to an average proportion of communications that would be rated as objectionable by users, and determining that the second communications is of unacceptable quality if the P(UDI) exceeds a threshold value.

28. The method of claim 27 wherein said threshold value for the P(UDI) of the second communications service is 0.06.

29. The method of claim 26 wherein said second communication service is subject to at least one impairment that does not affect the first communication service.

30. The method of claim 29 wherein said impairment is packet loss

31. The method of claim 29 wherein said impairment is packet delay.

32. A method for determining the performance required of a second communications service to achieve acceptable quality in comparison to a first communications service, comprising the steps of:

obtaining a permissible P(UDI) limit, where P(UDI) relates to a percentage (P) of calls or connections that elicit unusable (U), difficult (D), or irritating (I) responses;

obtaining a first mean opinion score representing the quality of the first communication

service;

determining a value of packet delay for the second communications service;

determining a reduced P(UDI) margin by subtracting the effects of the value of packet delay from the permissible P(UDI) limit;

obtaining an original data set comprising occurrences of values for performance characteristics absent the effects of packet loss;

transforming the original data set into a transformed data set based upon a given packet loss rate;

applying an effects matrix to the transformed data set to compute a predicted second mean opinion score and second P(UDI) for the second communications service;

determining a first maximum proportion of communications that may exhibit said second mean opinion score while maintaining an averaged mean opinion score that is acceptably close to said first mean opinion score;

determining a second maximum proportion of communications that may exhibit said second P(UDI) such that the averaged P(UDI) remains less than the reduced P(UDI) margin; and

selecting the lesser of the first and second maximum proportions as the maximum proportion of communications in the second communications service that may experience the given packet delay and packet loss rate yet still allow the second communications service to be perceived as having substantially the same quality as the first communications service .

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X. EVIDENCE APPENDIX

None.

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XI. RELATED PROCEEDINGS APPENDIX

None.